

REMARKS

Claim 1-2 and 8-11 are pending. By this Amendment, claims 1, 7, 8, 9 and 11 are amended.

The Office Action rejects claims 1-2 and 9-10 under 35 U.S.C. § 103 over Yokosawa (USP 6,001,479) in view of Ruhe and further in view of Hayashi (USP 5,637,373). This rejection is respectfully traversed.

Claims 1, 8, 9 and 11 have been amended to clarify that the proportion of functional groups having N atoms per 100 carbon atoms in a diamond-like carbon protective coating mainly composed of carbon for protecting the magnetic film exceeds 20%. It is respectfully asserted that this feature is not disclosed or suggested by any of the cited references, as further explained below.

Yokosawa discloses a magnetic recording medium comprising a non-magnetic substrate, a magnetic layer, a carbon protective layer and a lubricating layer. However, the protective layer is formed of DLC, and the lubricating layer comprises a lubricant having a polar terminal group in the hydrocarbon lubricant. Neither Yokosawa nor Ruhe disclose or suggest that the protective coating should include N atoms as the functional group, nor that N atoms per 100 carbon atoms exceeds 20%, as recited in the claims of the present application.

Further, Hayashi et al. teaches that Group IV element can be added by using N₂, ammonia, nitrogen trifluoride, etc. in case of adding nitrogen, and to add phosphorous, phosphine and the like. The flow ratio of those gases depend on other film deposition parameters such as the pressure and the applied electric power, but in general the flow ratio is preferably controlled to a ratio of 10% or less with respect to the flow ratio of the carbon source gas. (See col. 5, line 64, - col. 6, line 4.) Hayashi thus suggests the flow ratio of the gases, but does not teach that the proportion of functional groups having N atoms per carbon atoms in a diamond-like carbon coating should exceed 20%. This proportion is not taught by any of the cited references, and is certainly not taught by Hayashi. In fact, Hayashi teaches that the flow ratio of gases is controlled to be 10% or less with respect to carbon source gas and thus teaches away from the claimed invention. Further, the primary reference Yokosawa and the secondary reference Ruhe do not cure the deficiencies of Hayashi, because neither suggests any particular ratio that could be used.

Because the only reference that teaches any ratio specifically teaches away from the claimed ratio, it is respectfully submitted that one of skill in the art would not combine the references in such a way as to reach a ratio that exceeds 20%, since the references teach away from such a ratio. For at least these reasons, it is submitted that the claims would not have been obvious over the cited references. Withdrawal of the rejection is requested.

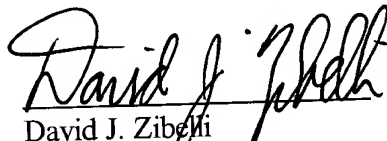
For at least the above reasons, it is submitted that the application is in condition for allowance. Prompt consideration and allowance are solicited.

The Office is authorized to charge any fees due under 37 C.F.R. §1.16 or 1.17 to Deposit Account No. 11-0600.

Should there be any questions, the Examiner is invited to contact Applicants' undersigned attorney.

Respectfully submitted,

Dated: September 5, 2003


David J. Zibelli
(Reg. No. 36,394)

KENYON & KENYON
1500 K Street, N.W.
Suite 700
Washington, D.C. 20005
Telephone: (202) 220-4200
Facsimile: (202) 220-4201